

What is claimed is:

1. A vacuum pressure booster comprising:

a booster shell;

5 a booster piston accommodated inside the booster shell and partitioning the interior of the booster shell into a front side vacuum pressure chamber communicating with a vacuum pressure source and a rear side operation chamber;

a valve cylinder communicating with the booster

10 piston, the valve cylinder including:

a valve piston fitted into the valve cylinder to be slideable in a forward and rearward direction of the valve cylinder;

15 an input rod coupling with the valve piston at a front end thereof;

a control valve switching communication of the operation chamber with the vacuum pressure chamber and with air in accordance with a forward and rearward movement of the input rod between the valve piston and the valve cylinder; and

20 an input return spring for pushing the input rod backward, and

the control valve including:

an annular vacuum pressure introducing valve seat

25 formed in the valve cylinder;

an atmosphere introducing valve seat formed in
the valve piston and arranged inside the vacuum
pressure introducing valve seat;

5 a valve body including: an annular attaching bead
portion airtightly attached to the valve cylinder; an
expansion cylinder portion extending in the axial
direction from the attaching bead portion; and an
annular valve portion communicating with a forward end
portion of the expansion cylinder portion and opposed
10 to the vacuum pressure introducing valve seat and the
atmosphere introducing valve seat so as to seat
thereon; and

15 a valve spring for pushing the valve portion so
as to seat on the vacuum pressure introducing valve
seat and the atmosphere introducing valve seat,
wherein a first port communicating with the vacuum
pressure chamber is opened on the outer circumferential
side of the vacuum pressure introducing valve seat,
a second port communicating with the operation chamber
20 is opened between the vacuum pressure introducing valve
seat and the atmosphere introducing valve seat in such a
manner that the inner circumferential side of the valve
portion is communicated with the atmosphere,

the attaching bead portion is tightly held by a pair of cylindrical holding portions formed in a pair of valve holders attached to the valve cylinder, and

the diameter of the holding portion is smaller than
5 the inner diameter of the valve cylinder.

2. The vacuum pressure booster according to claim 1,
wherein at least one of the pair of valve holders is
engaged on the inner circumferential face of the valve
10 cylinder through a seal member.

3. The vacuum pressure booster according to claim 1,
wherein a cylindrical connecting portion engaging with an
outer circumferential face of one valve holder having the
15 holding portion for holding an inner circumferential face
of the attaching bead portion is integrally formed in the
other valve holder having the holding portion for holding
an outer circumferential face of the attaching bead
portion.

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4. The vacuum pressure booster according to claim 2,
wherein a cylindrical connecting portion engaging with an
outer circumferential face of one valve holder having the
holding portion for holding an inner circumferential face
25 of the attaching bead portion is integrally formed in the

other valve holder having the holding portion for holding an outer circumferential face of the attaching bead portion.

5 5. The vacuum pressure booster according to claim 3, wherein a recessing and a protruding portion elastically engaged with each other are formed on respective engaging faces between the pair of valve holders.

10 6. The vacuum pressure booster according to claim 4, wherein a recessing and a protruding portion elastically engaged with each other are formed on respective engaging faces between the pair of valve holders.

15 7. The vacuum pressure booster according to claim 1, wherein the valve portion is slidably fitted on the inner circumferential face of the valve cylinder,

 a forward annular chamber and a rear annular chamber are formed in the valve cylinder,

20 the forward annular chamber is communicated with the first port and the rear annular chamber is communicated with the second port,

 a forward annular chamber is closed by the front face of the valve portion when the valve portion is seated on

25 the vacuum pressure introducing valve seat, and

a back face of the valve portion is facing to a rear annular chamber.

8. The vacuum pressure booster according to claim 2,
5 wherein the valve portion is slidably fitted on the inner circumferential face of the valve cylinder,

a forward annular chamber and a rear annular chamber are formed in the valve cylinder,

the forward annular chamber is communicated with the
10 first port and the rear annular chamber is communicated with the second port,

a forward annular chamber is closed by the front face of the valve portion when the valve portion is seated on the vacuum pressure introducing valve seat, and

15 a back face of the valve portion is facing to a rear annular chamber.

9. The vacuum pressure booster according to claim 3,
wherein the valve portion is slidably fitted on the inner
20 circumferential face of the valve cylinder,

a forward annular chamber and a rear annular chamber are formed in the valve cylinder,

the forward annular chamber is communicated with the first port and the rear annular chamber is communicated
25 with the second port,

a forward annular chamber is closed by the front face of the valve portion when the valve portion is seated on the vacuum pressure introducing valve seat, and

5 a back face of the valve portion is facing to a rear annular chamber.

10. The vacuum pressure booster according to claim 4, wherein the valve portion is slidably fitted on the inner circumferential face of the valve cylinder,

10 a forward annular chamber and a rear annular chamber are formed in the valve cylinder,

the forward annular chamber is communicated with the first port and the rear annular chamber is communicated with the second port,

15 a forward annular chamber is closed by the front face of the valve portion when the valve portion is seated on the vacuum pressure introducing valve seat, and

a back face of the valve portion is facing to a rear annular chamber.

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11. The vacuum pressure booster according to claim 5, wherein the valve portion is slidably fitted on the inner circumferential face of the valve cylinder,

25 a forward annular chamber and a rear annular chamber are formed in the valve cylinder,

the forward annular chamber is communicated with the first port and the rear annular chamber is communicated with the second port,

5 a forward annular chamber is closed by the front face of the valve portion when the valve portion is seated on the vacuum pressure introducing valve seat, and

a back face of the valve portion is facing to a rear annular chamber.

10 12. The vacuum pressure booster according to claim 6, wherein the valve portion is slidably fitted on the inner circumferential face of the valve cylinder,

a forward annular chamber and a rear annular chamber are formed in the valve cylinder,

15 the forward annular chamber is communicated with the first port and the rear annular chamber is communicated with the second port,

a forward annular chamber is closed by the front face of the valve portion when the valve portion is seated on 20 the vacuum pressure introducing valve seat, and

a back face of the valve portion is facing to a rear annular chamber.